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TOBACCO—DISCUSSION

J. B. KILLEBREW: Tobacco belongs to the nightshade family, which furnishes the potato, the tomato and red pepper, all of American origin. There are four species in America belonging to the genus Nicotiana, two of which, N. tabacum and N. rustica are extensively cultivated, and the N. quadrivalvis to some extent by the Indians in the Northwest. To the former species all the numerous varieties of tobacco now grown in the United States and Cuba may be referred; to the second, N. rustica, belong the Turkish and Hungarian tobaccos, and probably the Latakia tobacco of Syria. The Shirez tobacco (N. Persica) is said to be a native of Persia, and possibly it is the same species that is grown in China. In flavor it resembles the Latakia, but not in its habits of growth. Some of the varieties may have descended from one species or several, inextricably mixed by crossings and variations. In no other plant is the variability of the species involved in a labyrinth of greater difficulty and manifests itself in so many ways. Soil, climate, situation, reciprocal crossings of varieties and interbreeding, all go to produce an offspring, varying in size, structure, delicacy of fibre, fragrance, porosity, color of leaf, and capacity or incapacity to secrete resinous or gummy substances. Kolreuter, quoted by Darwin in his work on "Variation in Plants and Animals under Domestication," speaks of five varieties of common tobacco that were reciprocally crossed, and they bred plants intermediate in character and as fertile as their parents. When these five varieties were crossed with a different species, with a single exception they yielded sterile hybrids.

Tobacco, like wheat, adapts itself to climate, soils and situations. In New England, Pennsylvania and Wisconsin, tobacco is ready for the harvest within eight weeks from the time of transplanting to the fields, but in Virginia, Kentucky, Tennessee and North Carolina, from 110 to 140 days are required to ripen the leaves, except in the Champlain districts.

The Havana seed tobacco is now grown extensively in all the localities in the Northern states where twenty-five years ago only seed leaf varieties were cultivated. This Havana seed is the result of four successive generations from the original parent seed of the Havana variety. The modification brought about by climate and soil gives a distinct variety, longer in leaf, but with diminished fragrance, as compared with the original Havana. The leaves are finer in texture and more fragrant than the seed leaf varieties. If the seed from the Havana seed variety be planted in succession for several years, the tendency of the plant is towards the larger and coarser inordorous seed leaf. In this, one may see the effects of climate and soil in producing variations in species. Flavor is due to climate; texture and color to soil.

The most striking illustration of the variability of species produced by soil is that of the yellow tobacco in Virginia, North and South Carolina. In 1852, two brothers living on a sandy ridge between two affluents of the Dan River, in Caswell County, North Carolina, planted a crop of tobacco. The soil was thin and sandy and almost destitute of any plant nutrition. It was light in color, very sandy in character but friable and highly porous. The tobacco plants set out on this soil were grown in seed beds, sown with varieties that had produced heavy dark types. After being transplanted they grew very slowly. As the leaves developed and expanded it was seen that they changed in color from a light green to a golden yellow. In this condition, the plants were harvested and cured with open charcoal fires in closely chinked log barns. The leaves retained all their rich golden or lemon hues after being cured and they developed an aroma of a honey-like sweetness. When the tobacco was carried to market it brought a fancy price. The manufacturers of tobacco in the North, after that event, soon learned of the fitness of this yellow tobacco for making the best plug and it sprang into active demand. With this demand, came increased acreage and it was soon ascertained that all whitish or yellowish sandy soils in the Piedmont region would grow this handsome type of tobacco. The production soon extended into Person, Granville and Rockingham counties in North Carolina, and Pittsylvania and Halifax counties in Virginia. It was then carried to Buncombe and other counties in the mountainous division of North Carolina.

After 1880 its cultivation in a tentative way was begun in the Champlain districts of North Carolina with remarkable success. It was grown on the Potsdam sandstone soils and granitoid soils of eastern Tennessee, and in South Carolina. Wherever the conditions of sterility prevailed in a soil with a whitish color, there yellow tobacco could be grown successfully. Any ferruginous matter whatever in the soil is fatal in the production of this type. Portions of the same field, where trap-dykes were found with a residuary red soil, were carefully shunned by the growers of yellow tobacco.

The theory in growing the best types of yellow tobacco is that the soil is a sponge, which must have the capacity to receive and retain just enough fertilizing matter to support the plant until it reaches a proper size. After this it is best that the fertilizers be exhausted so that the plant may go into a gradual decline in its vitality, like the hickory leaves in autumn, growing more and more yellow, more and more delicate in tissue, more and more beautiful and storing up more and more sweetness until it is harvested. It was soon ascertained that too much manure applied to the soil would destroy the best qualities of the leaf, vitiate its fragrance and diminish its brightness of color.

The stupendous economical effects of the growth of yellow tobacco in North Carolina are well worth our attention. The prices of old worn out lands, once perfect pictures of sterility, desolation and unfruitfulness, have advanced from fifty cents per acre, thirty years ago, to thirty and fifty dollars per acre at the present time. Oftentimes from $150 to $300 are made from a single acre of tobacco. Great centers of trade have sprung up, new lines of railroad built, and the manufacturing industry has advanced more rapidly in North Carolina than in any other southern state. The profits from the yellow tobacco crop laid the foundation for the building of a large majority of the 7000 manufacturing establishments now in North Carolina, of which 679 are for textiles and 101 for the manufacture of tobacco.

Another remarkable variation of species, due both to soil and climate, is the White Burley variety, which, in its results, has changed the whole character of the agriculture of central Kentucky, converting a large portion of the finest blue grass and stock-breeding districts in America into a tobacco region. At first the plants grow slowly, but after becoming well established they advance rapidly, attaining magnificent size and displaying great vigor. They ripen two weeks earlier than most plants. When cured by atmospheric influences the underside of the leaf has a whitish tinge and the upper surface has a beautiful reddish golden color. Its culture has extended into all the rich counties of central Kentucky, as well as into those of southern Ohio. The soil best suited to its growth is a blue grass soil, gray in color, rich in humus, the residuum of the disintegrated Trenton limestones.

The variety has proved to be a most profitable one, with two sub-types; the heavy used for manufacturing plug, and the light for a cutting leaf. Both types are very popular with manufacturers, because of their absorptive capacity. The White Burley tobacco is low in nicotine having a content of about 2.80 per cent. while the rich heavy shipping types have a content as high as 5.60 to 6 per cent. This low content of nicotine made the White Burley tobacco exceedingly popular with American consumers because of its mildness and its less injurious effects upon highly organized nervous constitutions. Yellow tobacco carries a still smaller per cent of nicotine, but with less absorptive capacity. Three-fourths of the chewing tobacco, both plug and fine-cut, consumed in America is manufactured from the White Burley and the yellow tobacco types. The White Burley is now a distinct variety, as much so as the seed leaf, and is what Darwin calls an incipient species, as also is the yellow tobacco.

There is a well-defined correlation between the color of the soil and the color of the tobacco grown upon it and also between the constituent elements of the soil and the quality of the cured product. It has been mentioned how the pale yellowish soils grow a tobacco of a yellow color; how the grayish soils of the blue grass region will effect the color of the White Burley. This latter type planted on red soils will show more brown or red in the cured leaves. The rich, dark, heavy shipping tobacco is grown on reddish or chocolate colored soils, clayey in composition, compact and heavy. The color of these soils is due to the presence of iron oxides. The more heavily manured such soils are, the darker and stronger the tobacco. This dark tobacco is the richest of all types in nicotine, gummy substances and oils. It is heavy of leaf, with small midribs and delicate fibres.

The leaf is soft, pliant, oily and silky, resembling to the touch a kid glove. Its pores are filled with gummy substances to such an extent as to impair its absorptive capacity. While the co-efficient of absorption for the White Burley types is 2.60, that of the heavy tobacco is only 1.48; that is to say the White Burley will absorb about twice as much water or sauces with which it is treated in its manufacture as the rich, heavy shipping tobacco.

A light colored soil, whether of arenaceous or clayey material, will yield a product that will cure to lighter colors than that grown on soils of a darker color. Tobacco grown on sandy soils is more porous but is much coarser than that grown on clayey soils. Newly opened land, or what is called in the South "new ground," whatever its character will mature a crop of tobacco quicker than old lands of the same general characteristics and the product will be lighter in color.

Perique tobacco, so strong in the essential elements of tobacco, is almost black in color. It is grown in the vacheries of Louisiana, the soils of which are a dark alluvium, rich in humus and plant food. These vacheries are but little elevated above the swamps with which they are surrounded. The dark color of the tobacco is due largely to the method of curing, which is done by the frequent reabsorption of its juices after being heavily pressed. Indeed it is said to be cured in its juices.

Situation has much to do with the quality of cured tobacco, other things being equal. A southern exposure will make a tobacco lighter in body, brighter in color and with less gummy material in its composition. A northern slope, receiving less sunlight, will require a longer period for bringing the tobacco to maturity. It has more time for storing up gummy substances. An eastern exposure will make tobacco intermediate between that grown on the northern and southern exposures, while that grown on western slopes will be more like that grown on a southern slope, as it receives more of the heat of the sun than that grown on an eastern exposure.

If time permitted, I might go on and tell how variant are the tastes and fancies of the different nations in the selection of the types of tobacco to be consumed by them. The Norwegians and Swedes, for instance, want the strongest tobacco grown, which they are said first to chew, then to smoke, and then to snuff the ashes. The Germans want the "black fats" and also a sweet tobacco, of fine stem and fibre, cherry red in color or mottled with yellow. It must be porous so as to take in the sauces with which it is treated in its manufacture. This is known in the American markets as the German saucer. The French requirements call for a milder red tobacco, or the White Burley types; the Italians want tobacco of a dark brown color, strong, smooth and silky in texture; the Austrians want a type of solid fine texture and glossy sheen, of uniform brown color, tough and stretchy; the Spanish take the lowest grades of lugs and light types; the English take many sorts, but one essential requirement is that they must be absorbent, strong and elastic in texture, that the tobacco may be spun into rope-like strands. The negroes of Africa take the longest tobacco that is shipped from America. This, they make into a large cigar, not less than twenty-six inches in length, soak it in lard or palm-oil and then the whole tribe sit in a circle and smoke until they become deliriously intoxicated. Nearly all foreign nations prefer tobacco cured by fire. The Americans prefer that cured without fire or smoke.

No other product that enters into commerce is taxed so heavily as tobacco. England levies a tax of 77 cents per pound when it contains 10 per cent of moisture ; 85 cents per pound, when there is less than this amount. This is from twelve to fifteen hundred per cent on the prices which farmers receive. Norway, Sweden, Switzerland, Holland, Belgium, and Russia all levy heavy taxes. France, Portugal, Italy, Spain, Austria and Turkey make a monopoly of tobacco. All tobacco is sold directly to the governments last mentioned, is manufactured by them and sold to consumers. France, however, in order to accommodate her thousands of guests, will permit the introduction or rather the importation of tobacco for the private use of the importer upon the payment of $694.80 per hundred kilograms. This is $3.15 per pound and is probably the highest duty ever paid upon any article of consumption. These countries making a monopoly of tobacco are called Regie governments.

WILLIAM H. GLASSON : I come from the part of North Carolina referred to by Mr. Killebrew on account of the infertility of its soil and I was, therefore, much interested in what he had to say about the effect of the introduction of the culture of bright tobacco on the prosperity of that region. A striking illustration of the development based upon the culture and manufacture of this plant is seen in the present city of Durham which was, at the close of the Civil War, a very unimportant railway station near which Sherman received the surrender of Johnston's army. Then it was the home of a few scattered families. To-day it is a widely known city—typical of the new manufacturing South—and containing with its several suburbs from twelve to fifteen thousand people. This growth has been based upon the bright tobacco industry, supplemented by the manufacture of cotton goods.

An interesting story is told of the way in which the fame of Durham tobacco was first spread abroad. The manufacture had already been begun in a small way when Sherman's army arrived at Durham. It is said that some of his soldiers broke into a factory or storehouse where the bright leaf tobacco was kept, and helped themselves. This proved so satisfactory that after they had gone North they began to send back to Durham from all parts of the country, orders for tobacco. Such orders materially aided in the growth of the Durham industry. Johnston's army surrendered to Sherman, but Sherman's men were taken captive by Durham tobacco.